REMARKS

Claims 1, 38 and 40-49 were examined. Claims 1, 38 and 40-46 stand rejected, claims 47-49 are withdrawn from consideration, and no claims are allowed.

By this Amendment, claims 1, 38, 40-42 and 46 are amended, claims 43-45 and 47-49 are canceled, and no claims are added. Accordingly, claims 1, 38, 40-42 and 46 are presented for further examination. Applicants submit no new matter has been added. By this Amendment, claims 1, 38, 40-42 and 46 are believed to be in condition for allowance.

At the outset, Applicants submit claim 38 is amended to, *inter alia*, correct a typographical error. Specifically, the second appearance of the word "shell" is deleted.

Objections to the Specification

The abstract was objected to for using legal phraseology such as the term "said". To overcome this objection, Applicants herein amend the specification to delete the term "said". Accordingly, Applicants submit the objection is overcome.

Furthermore, to address the Examiner's concern noted on page 7 of the Office Action, the Abstract is currently amended to correspond to the "consisting essentially of" phraseology used in the currently pending claims.

Rejections/Objections under 35 USC §112

The Examiner rejected claim 42, 45 and 46 under 35 U.S.C. §112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner states there is no support in the specification for metal or metal-containing compounds other than copper salts, copper hydroxide or cuprous oxide with respect to copper pyrithione for the presently claimed range.

Applicants respectfully submit that the proviso in claim 42, which recites a specific ratio, refers only to situations where the metal-containing compound in the core and the metal pyrithione in the shell is copper. The proviso, including the ratio, is supported in the instant specification. However, to provide further clarify claim 42, Applicants herein amend the proviso to recite that the metal or metal-containing compound comprises copper and the metal pyrithione is copper pyrithione. Applicants submit this amendment is supported at least by the disclosure at page 10, line 23 to page 11, line 2. Accordingly, Applicants submit the present rejection has been overcome and respectfully request the Examiner withdraw the rejection.

Rejections under 35 USC §102

Claims 1, 38, 40, 41, 43 and 44 are rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 5,916,947 to Morris, et al.

Morris, et al. discloses a particle mixture in powder or slurry form which exhibits antifouling properties when incorporated into a carrier comprising zinc oxide (Col. 2, lines 42-44). Additionally, Morris, et al. discloses a "preformulation step . . . which involves either subliming or solvent depositing the photosensitizer over the surfaces of the colloidal zinc oxide prior to suspending the zinc oxide pigment in the vehicle." (Col. 6, lines 10-14). The vehicle comprises a resin, one or more pigments, a suitable solvent for the resin, and various optional additives. (See Col. 5, lines 55-57).

The photosensitizer disclosed by Morris, et al. is preferably substantially insoluble in water, absorbs visible light, and catalyzes the production of peroxides when contacted with zinc oxide, water, oxygen and visible light. (Col. 3, lines 52-56). One of the seven photosensitizers named in Morris et al is zinc pyrithione, and it is the only pyrithione specified.

In contrast, the currently amended claims are directed to a biocidal composition that includes, *inter alia*, composite particles containing a shell and a core. The core includes a metal or a metal-containing compound, whereas the shell includes a metal pyrithione. The metal pyrithione in the shell is formed by a transchelation reaction of a water-soluble salt of pyrithione selected from sodium pyrithione or potassium pyrithione with a portion of the metal or metal-containing compound that is in the core. Support for the amendments can be found at least at pages 9, 10, and 12-13 of the present specification as well as the Examples.

Applicants respectfully submit that Morris et al. does not teach or suggest a particle having a shell and a core, where the shell is formed by a transchelation reaction of a water soluble salt of pyrithione selected from sodium pyrithione or potassium pyrithione with a portion of the metal or metal-containing compound that is present in the core . To the contrary, Morris et al. illustrate a particle that is formed by the deposition of an insoluble photosensitizer (e.g., zinc pyrithione) over zinc oxide. The deposition of an insoluble photosensitizer over zinc oxide is not the same as, nor is it suggestive of formation of a particle having a shell and a core, where the shell is formed by transchelation of a water soluble pyrithione salt and a portion of the metal or metal-containing compound that is in the core.

Accordingly, the Morris et al. product itself is different from, and not suggestive of, the instantly claimed composition. Therefore, Applicants submit that the instant rejection of the claims under 35 U.S.C. §102(e) is untenable and should be withdrawn.

Claims 1, 38, 43 and 44 were rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 6,162,446 to Hani, et al. Hani et al. discloses transchelation of zinc oxide with a pyrithione salt such as sodium pyrithione to form particles of zinc pyrithione. There is no suggestion in Hani et al. of composite particles having a core and a shell wherein the core is, for example, zinc or zinc oxide and the shell consists essentially of metal pyrithione including transchelated metal from the core at the core/shell interface as instantly claimed.

To the contrary, Hani et al. discloses the production of *discrete particles* of zinc pyrithione. The teaching of the formation of discrete zinc pyrithione particles does not disclose or suggest composite particles having a shell and a core of any kind, much less those as instantly claimed in light of the closed language with respect to the recited shell and core.

Claims 1, 38, 43 and 44 were rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 6,465,015 to Mohseni, et al. Mohseni et al. discloses in Example 1 thereof the use of sonication during the preparation of particles of zinc pyrithione by reacting sodium pyrithione with zinc sulfate. The sonication helps prevent agglomeration of the individual zinc pyrithione particles.

There is no suggestion in Mohseni et al. of composite particles wherein the core is, for example, zinc or zinc oxide and the shell consists essentially of metal pyrithione wherein the metal pyrithione is formed by transchelation of metal from the core at the core/shell interface as instantly claimed. To the contrary, the patentee discloses the production of *discrete particles* of zinc pyrithione. The teaching of the formation of discrete zinc pyrithione particles does not disclose or suggest composite particles having a shell and a core of any kind, much less those as instantly claimed.

Rejections under 35 USC §103

Claims 1, 38 and 40-46 were rejected under 35 U.S.C. §103(a) as being obvious and unpatentable in view of Morris, et al., Hani, et al., or Mohseni, et al. and in further view of U.S. Patent No. 5,518,774 to Kappock, et al. Applicants respectfully submit that this rejection is untenable and should be withdrawn.

The Morris et al., Hani et al. and Mohseni et al. references have been discussed individually in detail above. Morris et al. teaches away from the instantly-claimed product since the common zinc ion disclosed in the zinc pyrithione and zinc oxide components disclosed therein cannot transchelate. Accordingly, the combination of Morris et al., with either Hani et al. or Mohseni et al., singly or in combination, is not proper since the combination for purposes of establishing a transchelated product runs counter to the teachings of one of the references sought to be combined, namely Morris et al. Hence there is no proper motivation to combine the teachings of the references. The Morris et al. product does not envision transchelation, and to infer such based upon the secondary references is in conflict with the requisite common zinc ion of Morris et al. Accordingly, this rejection is untenable and should be withdrawn.

The rejection based upon the combination of Morris, et al. and Kappock, et al. is untenable since the result sought to be achieved by virtue of the combination runs counter to the teachings of the individual references. For example, Morris, et al. teaches away from transchelation of any kind, much less that of the instantly claimed product, by virtue of patentees' disclosure of a common ion (zinc) for the metal and for the pyrithione salt. Contrariwise, Kappock teaches complete transchelation of zinc with a soluble pyrithione salt to produce an insoluble pyrithione salt, namely zinc pyrithione. Accordingly, there is no

motivation to combine these references since the teachings of one reference runs counter to the teachings of the other reference. Hence there is no proper motivation to combine the teachings of the references. Accordingly, the rejection of the instant claims based upon that combination is believed to be untenable and should be withdrawn.

Applicants submit that, absent a motivation to combine the references, a prima facie case of obviousness is lacking. For a prima facie case of obviousness to exist, there must be some objective teaching in the art or knowledge generally available to lead one of ordinary skill in the art to combine the references. See *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988). Since no such motivation has been established by virtue of the outstanding Office Action, it is respectfully asserted that a prima facie case of obviousness has not been established. Further, Applicants submit that none of the references, alone or in combination, anticipate or make obvious the invention as presently claimed and that the application is now in condition for allowance.

None of these references, either alone or in combination, disclose or suggest the biocidal composition of the claims as amended herein, particularly in view of the "closed language" regarding the shell and core recited in the instantly-amended claims. Accordingly, Applicants submit the present rejection is untenable.

In summary, Applicants submit that none of the references, alone or in combination, anticipate or make obvious the invention as presently claimed and that the application is now in condition for allowance. Therefore, Applicants respectfully request consideration of the amended claims, and an early receipt of a Notice of Allowance of the claims as amended.

Applicants respectfully request consideration of the claims in their amended form, and an early receipt of a Notice of Allowance thereof. Any fees due with this Reply may be charged to Deposit Account **23-1665** under Customer Number **27267**.

Respectfully submitted,
David Gavin, et al.

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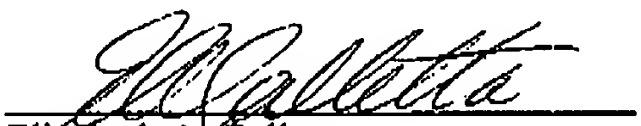

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